Montana
TranPlan 21
Transportation Planning for the 21st Century

1999 Public Involvement Telephone Survey

Multimodal Planning Bureau
Transportation Planning Division
Montana Department of Transportation

1999 Public Involvement Telephone Survey

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EXECUTIVE SUMMARY

In 1999 Montanans are:
- Generally satisfied with the state's transportation system
- Satisfied with the physical condition of system components (except bus depots)
- Somewhat satisfied with the availability or various transportation services (except taxis and passenger rail service)

Montanans want more facilities, equipment, or services for:
- City streets
- Major highways other than interstates
- Rest areas
- Pedestrian walkways

Montanans viewed nearly all problems studied as small problems. The only problems viewed as moderately severe were rest area access and traffic congestion.

Out of 21 possible actions to improve Montana's transportation system, the highest priority actions are:
- Inform the public on transportation issues
- Improve roads and streets
- Keep up with current technology
- Year-round access to rest areas
- Increase highway capacity due to growth
- Improve safety

Montanans said the following about highway safety:
- Aggressive driving is a minor problem, though a majority of MDT District One residents say it is a major problem.
- Over three-quarters of respondents said numeric speed limits are a good idea.
- 58.2% of respondents said driving with headlights on all the time makes our highways safer.

When compared to the previous telephone surveys, the trends show:
- Overall system satisfaction is unchanged since 1994.
- Satisfaction with the physical condition of system components has increased since 1994.
- Perceived system problems continue to be rated as small or medium problems.
- Possible system improvements remain rated as medium priorities.

Indications that warrant watching:
- Montanans' satisfaction with the availability of transportation services remains unchanged except for two; out-of-state air travel and passenger rail services declined in 1999
- It is likely that more Montanans in 1999 want improved rest area facilities, equipment, or services.
- Montanans rated the severity of three growth-related problems (traffic congestion, too many driveways and approaches, and the number of 1-occupant vehicles) higher in 1999, while the remaining severity ratings were unchanged.
- Two system-wide improvements (keeping Montanans informed and keeping up with current technology) were rated higher priorities in 1999.

- Three actions to improve the availability of transportation services (including promoting the availability of out-of-state air travel service) were judged higher 1999 priorities.
- Five growth-related system improvements (increasing highway capacity due to growth, reducing traffic congestion, reducing vehicle CO emissions, regulating the # of driveways and approaches, and reducing the # of 1-occupant vehicles) were rated higher priorities in 1999.

I. INTRODUCTION

The purpose of the 1999 TranPlan 21 Public Involvement Survey is to examine Montanans':

- Perceptions of the current condition of the transportation system
- Views about possible actions that could improve the transportation system in Montana
- Use of different transportation modes for personal activities

The telephone survey, one of several Montana Department of Transportation (MDT) public involvement processes, provides MDT policy makers and planners a model of different groups of Montanans and their transportation needs and preferences. The survey explores trends in public perceptions by maintaining comparability with the 1994 and 1997 TranPlan 21 telephone surveys. The survey is designed to help MDT policy makers and planners examine the efficiency, capacity, and flexibility of Montana's transportation system to meet current needs and future demands. The survey also helps MDT staff determine changes in public opinion that indicated a need to update TranPlan 21.

Survey Design

The 1999 TranPlan 21 Public Involvement Survey is the third iteration of a cross-sectional analysis designed to provide both a snapshot of current public opinion and trend analysis. This survey was administered by telephone using a Computer-Assisted Telephone Interviewing (CATI) process. Sampling was conducted using a Random-Digit Dial (RDD) process. The population sampled was all adult Montanans who live in a household with a working telephone. This population should not be confused with all Montanans, since it excludes households without working telephones, the institutional population, and Montanans absent from the state during the survey period. The approximate sampling error for this survey is plus or minus 3.6%. This means that using this study design, in 95 of 100 samples a sampled mean would be within 3.6% of the population mean.

Survey Administration

The survey was administered from July 19, 1999 through August 15, 1999. Of the 952 eligible respondents contacted, 728 (76%) participated in the survey. A 76% response rate is considered typical for a survey of this type.[1]

Respondents were selected randomly within households. The person answering the telephone had the same probability of being selected as any adult member of the household. If the selected member of the household was not home, an appointment was made to interview the absent respondent. Sampled individuals who were out of state during the administration period, and individuals with medical problems, which precluded participation, were ineligible. Telephone numbers drawn by the RDD process were ineligible if they were out-of-service, fax machines, or businesses. Numbers for which there was no answer were called repeatedly, during morning, evening, and weekend hours. Those numbers, which still did not answer, were ineligible

The Respondents

Table 1 describes the respondents, and provides benchmarks against which they may be compared. Nearly half (47.9%) of respondents are female, and nearly half (52.1%) are male.

[1] Bradburn, Norman, and Sudman, Seymour: Polls and Surveys: Understanding What They Tell Us. San Francisco: Jossey-Bass, 1988, p. 123.

The percentage of females and males in this sample is within the sampling margin of error of the 1998 Census Bureau estimate.[2]

Distribution of the sample among races also approximates Census Bureau estimates.[3] American Indians or Alaskan Natives comprise 8.9% of respondents, while 90.2% are White. Asian or Pacific Islanders, Blacks, and Hispanics each comprise less than 1% of respondents.

1999 TranPlan 21 Public Involvement Telephone Survey Respondents

Characteristics	1994 Survey	1997 Survey	1999 Survey	Census Bureau Estimates
Male	49.8%	49.4%	52.1%	49.1%
Female	50.2	50.6	47.9	50.9
Native American/Alaskan Native	N/A	4.0	8.9	6.3
Asian/Pacific Islander	N/A	0.6	0.3	0.6
Hispanic	N/A	0.7	N/A	N/A
Black	N/A	0.4	0.6	0.3
White	N/A	93.5	90.2	92.7
Other/Don't know	N/A	0.8	0.0	N/A
Mean Age	44.8	49.6	49.0	46.3
1 - 12 Grade	5.0%	9.5%	8.0%	10.9%
H.S. Diploma or some College	62.3	61.2	59.8	65.2
B.A. or more	32.7	29.3	32.2	23.9

Table 1

The 1999 respondents' reports of education attainment parallel those found by the most recent U.S. Census Bureau data. Among respondents age 25 and over, 8.0% report attaining less than a high school diploma or General Education Diploma (GED). 1998 Census Bureau data show that, among Montanans age 25 or older, 10.9% did not complete high school or earn a GED.[4]

The mean age of 1999 respondents is 49.0 years, while the average age of Montanans age 18 and over in 1998 was 46.3.[5] The difference in mean ages is within the margin of sampling error. However, it is likely that older people are easier to reach on the telephone. The respondents to the 1999 survey are probably slightly older than the over-17 population of Montana. The probable effect of this slight difference on the data is small.

[2] Gender estimates from ST-98-10, U.S. Bureau of the Census, as of July 1, 1998.

[3] Race/ethnicity from ST-98-30, U.S. Bureau of the Census, as of July 1, 1998.

[4] Educational attainment from Detailed Tables for the Current Population Reports,P20-513, Table 13, March 1998.

[5] Age estimate from ST-98-10, U.S. Bureau of the Census, as of July 1, 1998.

1999 TranPlan 21 Public Involvement Survey		
Characteristic	**Percent**	**N**
District 1	29.0%	211
District 2	19.6	143
District 3	22.3	162
District 4	10.9	79
District 5	18.3	133

Table 2

Table 2 shows the survey population breakdown by MDT Financial District. Twenty-nine percent of respondents live in District 1 (Lincoln, Flathead, Sanders, Mineral, Missoula, Ravalli, Granite, Powell, and Lake counties), 19.6% live in District 2 (Beaverhead, Madison, Deer Lodge, Silver Bow, Jefferson, Broadwater, Meagher, Gallatin, and Park counties), 22.3% live in District 3 (Glacier, Pondera, Teton, Lewis and Clark, Cascade, Toole, Chouteau, Liberty, Hill, and Blaine counties), 10.9% live in District 4 (Phillips, Valley, Daniels, Sheridan, Roosevelt, Richland, McCone, Garfield, Dawson, Prairie, Rosebud, Fallon, Custer, Powder River, Carter, and Wibaux counties) and 18.3% lived in District 5 (Bighorn, Treasure, Stillwater, Sweetgrass, Wheatland, Yellowstone, Golden, Valley, Petroleum, Fergus, Musselshell, Judith Basin, and Carbon counties).

The income distribution for the respondents is listed in Table 3. Since the income data were collected in categorical variables, direct comparison with Census Bureau data is not practical. However, based on observation of the 1999 TranPlan 21 Survey income distribution, it would appear that the distribution is roughly comparable to the inflation adjusted, 1998 Census Bureau estimate of Montana's median household income, $31,541. [6]

1999 TranPlan 21 Public Involvement Survey Income Distribution	
Income	Percent
<$10,000	17.8%
$10,000 - 19,999	11.6
$20,000 - 34,999	20.1
$35,000 - 49,999	20.8
$50,000 - 100,000	23.0
>$100,000	6.7

Table 3

Structure of this Report

The primary purpose of this report is to describe data collected by the 1999 TranPlan21 Public Involvement Survey. Adequate description of these data requires presenting an extensive set of tables throughout the report. Analyses of the data are also presented. The report examines three areas. First, Montanans' attitudes about the state's transportation system are explored. Second, personal transportation behavior in Montana is described, and the characteristics of transportation users are examined. Finally, trends in Montanans' attitudes about the transportation are discussed.

A map of MDT Financial Districts is located in Appendix A, found at the end of this report. Appendix B (Volume II) contains the remaining appendices. The text of the 1999 TranPlan21 Public Involvement Survey may be found there also. Tables of responses to each question are also found in Appendix B (Volume II), and can serve as a useful, quick-reference tool.

[6] US Census Bureau, Money Income in the U.S.: P60-206, 1998; and 1999 Implicit Deflator for Personal Consumption Expenditures, U.S. Department of Commerce, Bureau of Economic Analysis.

To determine differences between group means and percentages, t-tests were calculated and are reported throughout this document. T-test results reported here will use the .05 significance level unless stated otherwise. If a value is said to differ from a second value at the .05 level, in 95 out of 100 samples the value will be found to differ from the second value. When comparing group means for this report, a Bonferroni-adjusted t-test was used. The reason for using an adjusted t-test is that when one makes many comparisons involving the same means, the probability increases that one or more comparisons will turn out to be statistically significant, even when the population means are equal.[7] For instance, if one compares mean satisfaction scores from five income groups using an unadjusted test, the probability that at least one mean will be found significantly different is almost one in three, even if the population means are not different.

Often in this report, means will be listed in tables from highest to lowest. The following system will be used to tell readers if a mean is different from others in its group:

****	Indicates value differs from four lowest group values at .05 level.
***	Indicates value differs from three lowest group values at .05 level.
**	Indicates value differs from two lowest group values at .05 level.
*	Indicates value differs from lowest group value at .05 level.
^	Indicates value differs from lowest group value at .10 level.

Unless noted otherwise, "Montanans" in this report refer to those age 18 and older.

[7] Norusis, Marija: Guide to Data Analysis. Englewood Cliffs, NJ: Prentice Hall, 1995, p. 291.

II. ATTITUDES ABOUT MONTANA'S TRANSPORTATION SYSTEM

Overall Satisfaction

Montanans were asked to rate their overall satisfaction with the state's transportation system on a scale of one to ten, where one is "very unsatisfied" and ten is "very satisfied." The mean response, 6.30, reflected moderate satisfaction. Though the midpoint between one and ten is 5.5, five must be considered the psychological midpoint, and the distance above five a measure of the intensity of satisfaction.

Satisfaction with the Condition of System Components

Using the same one to ten scale, respondents rated their satisfaction with the physical condition of various transportation system components. Table 4 summarizes Montanans' responses.

Satisfaction with Condition of System Components

	Mean	95% Confidence Lower Limit	95% Confidence Upper Limit	N
Airports	7.60	7.43	7.77	555
Interstate Highways	7.24	7.09	7.38	706
Other Major Highways	6.12	5.97	6.27	689
Pedestrian Walkways	6.09	5.89	6.28	629
Rest Areas	6.04	5.85	6.23	641
Bicycle Pathways	5.65	5.36	5.94	417
City Streets	5.15	4.99	5.32	712
Bus Depots	4.67	4.42	4.92	367
Overall System	**6.30**	**6.16**	**6.44**	**708**

Table 4

The physical condition of airports is most satisfactory (7.60). People also express relatively strong satisfaction with interstate highways (7.24). Behind interstate highways is a group of four components with which Montanans are moderately satisfied:

- Other major highways (6.12)
- Pedestrian walkways (6.09)
- Rest areas (6.04)
- Bicycle pathways (5.65)

Respondents expressed a neutral level of satisfaction with city streets (5.15). Dissatisfaction was found with the physical condition of only one component, bus depots (4.67). Nearly 50% of the respondents did not have enough information about bus depots. This high proportion of "Don't Knows" is typical compared to the 1994 and 1997 surveys.

Respondent satisfaction can also be examined by region within Montana. Table 5 presents mean satisfaction scores for each of the five MDT financial districts.

Satisfaction with Condition of System Components by MDT District (mean scores)

	Districts 1	2	3	4	5
Airports	7.65	7.63	7.38	7.10	7.99
Interstate Highways	7.33	7.15	7.38	7.21	7.02
Other Major Highways	6.00	6.36	6.22	5.72	6.15
Pedestrian Walkways	5.81	6.42	6.17	6.10	6.06
Rest Areas	5.79	6.29	5.86	6.27	6.26
Bicycle Pathways	5.40	5.76	6.15	5.61	5.40
City Streets	5.20	5.15	5.19	5.23	4.96
Bus Depots	5.07	4.90	4.38	3.91	4.58
Overall System	**6.36**	**6.24**	**6.10**	**6.10**	**6.63**

Table 5

T-tests were calculated to assess the statistical significance of differences between the means presented. Overall, there is general agreement between respondents from the various MDT regions. District Three respondents did express greater satisfaction with the physical condition of airports (7.99) than District Four. There appears to be a wide difference in the level of satisfaction with bus depots. However, the large number of "Don't know" responses here reduced cell sizes such that the apparent differences fall outside accepted confidence intervals.

Perceived Need for More Infrastructure

Perceived Need for Additional Facilities, Equipment, or Services (%)

	Yes	No	Don't Know	N
City Streets	70.0%	25.9%	4.1%	727
Other Major Highways	63.1	27.6	9.2	727
Rest Areas	58.9	28.0	13.0	728
Pedestrian Walkways	55.0	32.0	13.1	726
Interstate Highways	49.6	41.5	9.0	726
Bicycle Pathways	46.6	22.2	31.3	726
Bus Depots	37.6	18.0	44.4	726
Airports	27.1	49.4	23.5	727

Table 6

In addition to asking about the physical condition of the transportation system components, Montanans were asked whether each of those components needed additional facilities, equipment, or services. People's perceptions about the need for more infrastructure are examined in Table 6. Consistent with their satisfaction ratings, nearly a majority of Montanans (49.4%) feel additional infrastructure is not needed for airports. Similarly, only a plurality said that more infrastructure is required for interstate highways (49.6%).

Seventy percent of Montanans believe that more facilities, equipment, or services are needed for city streets, and a large majority said the same thing for other major highways (63.1%), and rest areas (58.9%). A smaller majority advocates more infrastructure for pedestrian walkways (55.0%).

A plurality says that more bicycle pathway infrastructure is needed (46.6%). More respondents say they do not know about bus depot infrastructure (44.4%) than those that say more is needed.

A few regional differences are found when looking across districts (see Table 7).

Perceived Need for Additional Facilities, Equipment, or Services in Each MDT District (% yes)

	Districts 1	2	3	4	5
City Streets	63.3%	72.0%	69.8%	73.4%	76.7%
Other Major Highways	64.5	59.4	65.4	65.6	61.4
Rest Areas	63.0	53.8	61.1	51.9	59.4
Pedestrian Walkways	60.0	54.5	54.9	49.4	50.8
Interstate Highways	45.7	52.4	53.7	49.4	47.7
Bicycle Pathways	51.7	53.8	43.5	38.5	39.1
Bus Depots	35.5	35.7	37.9	38.5	42.1
Airports	19.9	31.5	27.8	39.7	35.6

Table 7

A small plurality of District Four respondents (39.7%) said more airport infrastructure is needed. In fact, twice as many District Four respondents said so when compared to District One respondents (19.9%).

While large majorities in each district reported needing additional city street infrastructure, significantly more District Five residents (76.7%) said so than District One residents (63.3%).

The remaining categories are distinguished more by their unanimity across districts than by their differences. One apparent exception is bicycle pathways. A majority of District One (51.7%) and Two (53.8%) respondents say more bicycle pathway infrastructure is needed, while a minority say so in Districts Three (43.5%), Four (38.5%), and Five (39.1%). However, these differences are not significant at minimum levels of confidence.

Satisfaction with Service Availability

Table 8 illustrates that Montanans are moderately satisfied with the availability of air transportation to destinations outside Montana (6.00), transit for the elderly or disabled (5.84), freight rail (5.80), and air transportation to Montana destinations (5.67).

Satisfaction with Service Availability

	Mean	95% Confidence Lower Limit	Upper Limit	N
Air Trans Outside MT	6.00	5.80	6.20	621
Transit Elderly /Disabled	5.84	5.61	6.06	512
Freight Rail	5.80	5.50	6.09	327
Air Trans in MT	5.67	5.45	5.89	523
Local Bus or Van	5.14	4.86	5.41	450
Inter City Bus	4.99	4.73	5.26	407
Taxi	4.76	4.49	5.04	390
Passenger Rail	4.15	3.88	4.42	417

Table 8

People are neutral in their satisfaction with the availability of local bus or van service (5.14), inter-city bus service (4.99), and taxi service (4.76). Montanans are dissatisfied with the availability of passenger rail service, giving this service a satisfaction score of only 4.15.

Satisfaction with Service Availability By MDT District
(mean scores)

	Districts 1	2	3	4	5
Air Trans Outside MT	6.12	5.76	5.66	5.84	6.61**
Transit Elderly /Disabled	5.62	5.82	5.75	5.64	6.44
Freight Rail	5.81	5.59	5.75	5.41	6.34
Air Trans in MT	5.82	5.13	5.50	5.24	6.55***
Local Bus or Van	5.18	4.92	4.94	4.00	6.23***
Inter City Bus	5.06	5.39	4.43	4.34	5.93**
Taxi	5.15*	4.76*	4.88*	3.15	4.89*
Passenger Rail	4.69**	3.13	4.49**	4.71**	3.20

Table 9

District Five reported the highest levels of satisfaction with service availability (see Table 9). Respondents from District Five reported significantly more satisfaction with the availability of air transportation to destinations outside Montana (6.61), air transportation within the state (6.55), local bus or van service (6.23), and inter-city bus service (5.93) than did other districts.

Districts One, Two, and Three report moderate satisfaction with the availability of air transportation to destinations outside Montana, transit for the elderly or disabled, freight rail service, and air transportation within the state. These same districts stated neutral levels of satisfaction with local bus or van service and taxi service.

District Four expressed significant dissatisfaction with the availability of local bus or van service (4.00), inter-city bus service (4.34), and taxi service (3.15). Some of this dissatisfaction may be the result of the rural character of District Four.

While each district said they were dissatisfied with the availability of passenger rail service, Districts Two (3.13) and Five (3.20) expressed deep dissatisfaction. The districts (One, Three, & Four) with AMTRAK service reported neutral levels of satisfaction.

Perceived Problems with Montana's Transportation System

Montanans rated possible problems on a scale from one to four, where one is "not a problem" and four is a "serious problem." Two problems out of eleven studied were described by Montanans as moderate concerns. Respondents classified the remaining nine as small problems (see Table 10). This reinforces the positive overall level of satisfaction with the transportation system expressed by Montanans.

Perceived Problems with Montana Transportation System (%)

	Not a Problem	Small Problem	Moderate Problem	Serious Problem	Don't Know	Mean	N
Year-Round Rest Area Access	17.2%	14.6%	31.9%	24.3%	12.0%	2.72	727
Traffic Congestion	22.4	17.4	32.1	25.3	2.7	2.62	728
Timely Resolution of Safety Issues	22.9	13.6	30.8	14.3	18.4	2.45	728
Vehicle Damage From Construction And Maintenance	20.9	26.5	31.0	14.7	6.9	2.42	728
Vehicle CO Emissions	31.3	19.5	28.2	11.1	9.9	2.21	728
Debris on Roadway	28.2	30.9	28.7	10.0	2.2	2.21	728
Number of 1 Occupant Vehicles	35.3	15.7	25.0	13.5	10.5	2.19	725
Too Many Driveways & Approaches	42.7	19.8	22.9	8.9	5.6	1.98	728
Road Maintenance Impact on Air	38.7	21.0	25.0	4.0	11.3	1.94	727
Adequate Road Signs	58.4	19.5	17.2	3.6	1.4	1.65	728

Table 10

Year-round rest area *access* is one of the two problems considered moderately serious (2.72 on a scale of one to four, where one is "not a problem" and four is a "serious problem").

When considered as a complete group, this survey's respondents made a distinction between the *physical condition* of rest areas, with which they were somewhat satisfied, and *access*. Traffic congestion is the second problem that Montanans considered moderately serious (2.62).

While the mean score on these two items is informative, it is also important to look at the responses in greater detail. A closer look indicates that respondents view these two problems with greater concern than the mean scores indicate. A significant majority of respondents said year-round access to rest areas (56.2%) and traffic congestion (57.4%) are either moderate or serious problems.

The remaining issues are perhaps most noteworthy because respondents on average do not consider them to be very significant problems. A significant majority of respondents say that adequate road signs (58.4%) are not problems at all. In addition, respondents classify the following five as either small problems or not problems at all:

- Too many driveways and approaches (62.5%)
- Road maintenance impact on air quality (59.7%)
- Debris on the roadway (59.1%)
- Number of one-occupant vehicles (51%)
- Vehicle carbon monoxide emissions (50.8%)

While few significant problems emerge when examining statewide data, the view is quite different at the district level. Table 11 explores the percentage of respondents in each district that say an item is a moderate or serious problem.

Percent (%) Each MDT District Say Component is A Moderate or Serious Problem

	Districts 1	2	3	4	5
Year-Round Rest Area Access	51.7%	57.0%	58.6%	55.7%	60.2%
Traffic Congestion	73.9****	52.5*	54.9*	25.3	58.7*
Timely Resolution of Safety Issues	49.3	47.6	39.5	36.7	47.4
Vehicle Damage From Construction And Maintenance	45.0	51.1	42.0	48.1	44.4
Vehicle CO Emissions	52.1****	37.1	30.9	30.4	36.8
Debris on Roadway	44.6^	39.9	31.5	40.5	36.1
Number of 1 Occupant Vehicles	49.3***	41.3	32.7	29.1	31.1
Too Many Driveways & Approaches	51.7****	28.0	24.7	16.5	22.6
Road Maintenance Impact on Air	40.8****	25.2	27.3	12.7	26.3
Adequate Road Signs	23.2	21.7	19.8	17.7	18.8

Table 11

Respondent views on traffic congestion are emblematic of Montana's regional differences. Nearly three of every four District One respondents say traffic congestion

is a moderate or serious problem. This percentage is significantly larger than that found in any other district. In a similar vein, nearly a majority (49.3%) of District One respondents said there are too many one-occupant vehicles on the road. This proportion is significantly higher than that reported by District Three, Four, or Five. District One respondents are also much more likely to say (51.7%) that having too many driveways and approaches is a moderate or serious problem. Only 28% of District Two respondents agree, while the totals for the remaining districts are even lower.

District One residents consider issues related to vehicles and air quality as more serious. District One is the only district where a majority said that vehicle carbon monoxide emissions are a moderate or serious problem (52.1 percent). And, while 40.8% of District One residents say dust caused by road maintenance is a moderate or serious problem, only a quarter of the other district residents cite air quality impacts of road maintenance as even a moderate problem.

Residents of Montana's other districts said the possible problems examined, with the exceptions of year-round rest area access and traffic congestion, are small problems or are not problems at all.

Actions to Improve Transportation System

Respondents were asked to prioritize 21 possible actions to improve Montana's transportation system (see Table 12). Respondents were given four choices of priority categories:

- No priority
- Low priority
- Medium priority
- High priority

A value of one was assigned to the "no priority" category, two to "low priority", three to "medium priority", and four to "high priority". Like the perceived problem items, a very large majority of respondents felt qualified to prioritize the action items presented.

While Montanans view most transportation system problems as small, they believe solving those problems should take on a medium priority. Twenty of the twenty-one possible action items were, on average, classified by Montanans as medium priorities. Only one possible action was considered a low priority.

Three system-wide actions received top priority scores. MDT keeping the public informed is the highest priority overall (3.48). MDT keeping current with new technology (3.42) is statistically tied with informing the public. Improving transportation safety (3.31) scores nearly as high.

Respondents rated solutions to four possible problems with individual system components highest. Improving roads and streets (3.42) was respondents' highest priority solution to a system component problem. Providing year-round access to rest areas (3.38) was statistically tied with roads and streets, as was increasing highway capacity due to growth (3.35). Improving highway maintenance (3.24) was ranked just behind.

Reducing one-occupant vehicle use (2.28) was the only action rated by respondents as a low priority. Priorities for possible actions to improve the transportation system were also examined across each of the five MDT regions. The percentage of respondents in each district who say an action is a medium or high priority is displayed in Table 13. Since, on

average, respondents classify almost all of the studied actions as medium priorities the differences between districts largely focus on the relative magnitude of majorities

There is general agreement among all of the MDT districts about six of the seven highest priority actions. While increasing highway capacity due to growth is a medium or high priority for a large majority of every district, nearly 90% of District One respondents said this.

Possible Actions to Improve Transportation System (%)							
	Not a Priority	Small Priority	Medium Priority	High Priority	Don't Know	Mean	N
Inform Public on Trans Issues	1.9%	5.2%	35.0%	55.8%	2.1%	3.48	726
Improve Other Roads & Streets	2.2	6.9	35.9	52.8	2.2	3.42	727
Keep Up With Current Tech	1.9	8.0	30.8	50.4	8.8	3.42	724
Year-Round Access To Rest Areas	2.2	11.2	30.7	51.4	4.5	3.38	726
Increase Highway Capacity Due to Growth	3.9	8.5	33.9	49.6	4.1	3.35	726
Improve Safety	4.4	10.8	32.6	49.2	3.0	3.31	725
Improve Highway Maintenance	4.4	9.4	41.9	41.6	2.8	3.24	726
Improve Interstates & Major Highways	5.6	14.9	37.7	36.8	5.0	3.11	726
Reduce Traffic Congestion	7.4	17.8	29.1	42.7	3.0	3.10	726
Promote Existing Passenger Rail	5.0	16.7	32.3	32.7	13.3	3.07	724
Promote Use of Local Bus/Vans	5.0	16.7	36.1	32.4	9.9	3.06	726
Ensure Adequate Pedestrian Facilities	7.7	15.4	37.3	36.5	3.0	3.06	726
Promote Available Air Service	6.9	16.8	32.6	32.2	11.4	3.02	726
Improve Bus Depots	4.1	14.6	26.5	24.1	30.6	3.02	725
Reduce Road Dust from Maintenance	7.9	20.7	34.4	31.5	5.5	2.95	726
Reduce Vehicle CO Emissions	9.0	19.6	33.9	32.4	5.2	2.95	726
Ensure Adequate Bicycle Facilities	7.3	24.0	29.0	30.5	9.1	2.91	724
Regulate Highway Approaches & Driveways	6.9	24.7	38.2	22.5	7.7	2.83	725
Rehab Historic Trans Facilities	4.7	30.2	35.7	21.9	7.6	2.81	726
Minimize Construction Environ Impact	11.0	24.9	36.8	20.8	6.5	2.72	726
Reduce 1-Occupant Vehicle Use	23.0	33.1	23.3	12.9	7.7	2.28	726

Table 12

District Four is, on average, less likely than other districts to rate an action as a medium or high priority. This pattern is seen in thirteen of twenty-one items examined, but is especially significant in nine items:

- Improve Interstates and Major Highways
- Promote Use of Local Bus/Van Service
- Reduce Traffic Congestion
- Promote the Availability of Airline Service
- Reduce Vehicle Carbon Monoxide (CO) Emissions
- Reduce Maintenance Impact on Environment
- Ensure Adequate Bicycle Facilities
- Rehabilitate Historic Transportation Facilities
- Reduce Single Occupant Vehicle Use

District One respondents demonstrated the opposite tendency. District One displayed the highest percentage saying an action is a medium or high priority in eleven of twenty-one items studied. This difference is especially significant in nine items:

- Increase Highway Capacity Due to Growth
- Reduce Traffic Congestion
- Promote Use of Local Bus or Van Service
- Reduce Maintenance Impact on Environment
- Reduce Vehicle CO Emissions
- Ensure Adequate Bicycle Facilities
- Minimize Road Construction Impact on the Environment
- Rehabilitate Historic Transportation Facilities
- Reduce One-occupant Vehicle Use

District Two respondents are the next most likely to cite an action as a medium or high priority. These respondents' priorities are higher than other districts for:

- Improving Interstates and Major Highways
- Promoting the Availability of Airline Service
- Regulating Highway Approaches and Driveways, and
- Reducing One-Occupant Vehicle Use.

District Five residents' priorities are higher than Districts Two, Three, and Four in two areas:

- Reducing traffic congestion, and
- Reducing vehicle CO emissions.

Percent in Each MDT District Say Possible Actions to Improve Transportation System a Medium or High Priority	Districts				
	1	2	3	4	5
Inform Public on Trans Issues	89.6%	92.3%	92.0%	88.5%	91.0%
Improve Other Roads & Streets	88.2	92.3	90.1	84.8	86.4
Keep Up With Current Tech	82.5	83.8	81.3	76.9	79.0
Year-Round Access To Rest Areas	83.9	83.1	81.5	78.2	81.2
Increase Highway Capacity Due to Growth	89.1	84.5	80.1	82.1	77.4
Improve Safety	80.6	85.9	80.8	79.5	82.0
Improve Highway Maintenance	83.4	83.1	82.1	85.9	84.2
Improve Interstates & Major Highways	70.1	83.8	71.0	70.5	78.2
Reduce Traffic Congestion	82.9	69.7	63.6	57.7	74.4
Promote Existing Passenger Rail	65.9	68.8	64.6	60.3	63.2
Promote Use of Local Bus/Vans	79.6	68.3	64.2	52.6	65.4
Ensure Adequate Pedestrian Facilities	79.6	78.2	68.5	71.8	67.7
Promote Available Air Service	64.5	74.0	64.8	55.1	61.7
Improve Bus Depots	47.4	50.7	52.8	48.7	54.1
Reduce Road Dust from Maintenance	73.5	69.7	58.6	57.7	63.9
Reduce Vehicle CO Emissions	74.4	67.6	58.0	51.3	70.7
Ensure Adequate Bicycle Facilities	69.5	62.0	57.8	50.0	48.9
Regulate Highway Approaches & Driveways	68.7	69.7	49.1	52.6	57.1
Rehab Historic Trans Facilities	62.6	61.3	54.3	42.3	58.7
Minimize Construction Environ Impact	63.5	61.3	50.0	52.6	56.4
Reduce 1-Occupant Vehicle Use	46.7	42.0	25.9	23.1	33.8

Table 13

Road and Highway Safety

Three new questions were added to the 1999 TranPlan 21 Public Involvement Survey. The first asked respondents about aggressive driving on Montana's roads and highways. Aggressive driving was rated on a scale from one to three where one is a major problem, two is a minor problem, or three is not a problem.

Overall, Montanans rated aggressive driving a 1.81 out of three, which can be interpreted as a minor problem. A plurality of respondents (45.3%) said aggressive driving is a minor problem, while 36.3% said it is a major problem, and 17.4% said it is not a problem at all. Less than 1% did not know.

Differences in respondent ratings can be seen at the district level. A majority of District One residents (50.5%) say aggressive driving is a major problem. District One respondents are significantly more likely than those from District Three (21.9%) or Four (27.3%) to rate aggressive driving as a major problem. Districts Two (37.6%) and Five (38.3%) are also more likely than District Three to rate aggressive driving a major problem.

Respondents were also asked whether they think that the new numerical speed limits are a good idea. Over three in four Montanans (78.8%) said the new speed limits are a good idea. Of equal interest was the unanimity of this positive view across the spectrum of demographic characteristics and geographic locations. No statistically significant differences in opinions were found among any of the demographic groups studied.

Finally, Montanans were asked whether they think that requiring drivers to drive with their headlights on all the time would make our highways safer. A significant majority (58.2%) said headlight use would make highways safer.

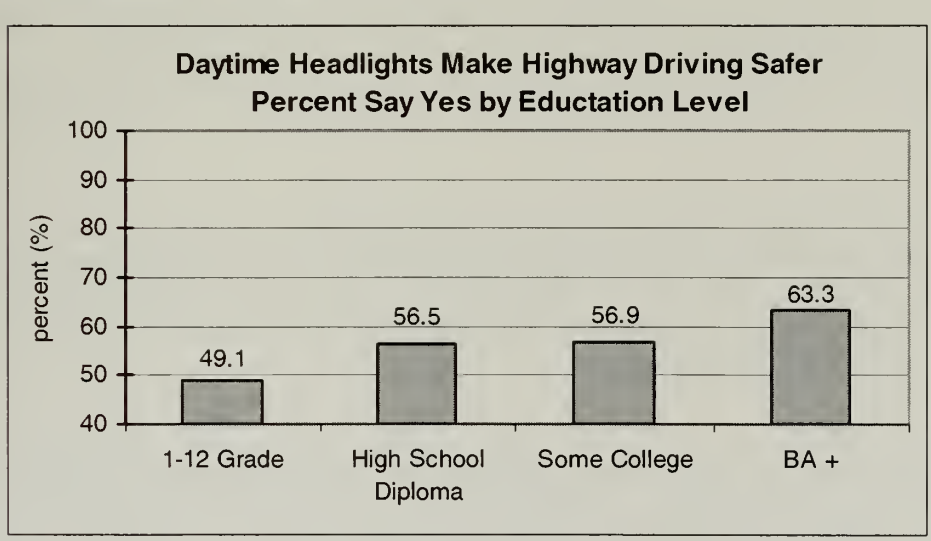


Figure 1

The educational attainment of respondents is related to their opinion about driving with headlights (see Figure 1). Respondents with lower levels of education attainment are less likely to say driving with headlights on makes highways safer. About half of respondents that did not attain a high school diploma or GED said headlights make driving safer, while nearly two-thirds of those with a bachelor's degree or more said headlights make driving safer.

III. PERSONAL TRANSPORTATION USE IN MONTANA

This survey examined personal transportation usage for the following activities:
- Travel to and from work
- On-the-job use
- Shopping
- Recreation
- Long distance travel (over 100 miles)
- Social activities (like church, personal visits, trips to the senior center)

The survey also examined household transportation usage for school-related activities. For each activity, respondents were asked to describe the general frequency of their use of various transportation methods using three categories:
- Not at all
- Once in a while
- Very often

For the purposes of this analysis "not at all" responses were coded as one, "once in a while" were coded as two, and "very often" were coded as three.

Table 14 lists the four most common modes of transportation used for each activity. The most prominent finding of this portion of the analysis is that motor vehicles (car, truck, or van) are the dominant mode of transportation in Montana. Adults who never use motor vehicles for the activities examined are so rare that this study cannot characterize them with confidence. What little data this study does have on this small sub-population indicates that other researchers wishing to study this group should test the hypothesis that non-motor vehicle users are older, female, live alone, and have low yearly household incomes. The institutional population, which was not sampled for this study, is also probably included in this rare sub-population. Motor vehicle users are, thus, the adult population of Montana. Walking, bicycling, and air travel are the next most commonly used modes across the range of activities studied.

Travel to Work

For travel to and from work, driving alone is the predominant transportation mode, with a mean use score of 2.66; walking (1.51) and bicycling (1.32) follow. Carpooling is the fourth most common mode, with a score of 1.23. A rough interpretation of these scores is that, on average, respondents drive alone to and from work very often, while they walk once in a while and they bicycle or carpool infrequently.

Trends in Travel to Work

By comparing data from this study with 1990 Census data and data from the 1997 Public Involvement Survey, trends in the modes of transportation to work may be examined. This examination is limited by the fact that the 1990 Census reports only the mode used most, while the 1997 and 1999 studies asked about the frequency of use for several modes. Given this limitation it is possible to compare the rank of the most common modes. The four most common modes remained constant between 1990 and 1999. Driving alone is the most common mode in all three years.

Asking how often several modes are used dropped the rank of carpooling in Montana from second in the 1990 Census to fourth in 1997 and 1999. The rank of walking (2) and bicycling (3) was unchanged between 1997 and 1999.

One final note about travel trends to and from work. About three percent of 1999 respondents identified themselves as workers who never use any of the modes to get to work. These respondents roughly correspond to people who work from their homes. This percentage is probably lower than either the 1990 Census figure (6.3%) or the 1997 figure (8.6%), though much of the apparent difference is due to normal sampling variation

Most Common Modes of Transportation Used for Each Activity

	Motor Vehicle	Drive Alone	Car Pool	Walk	Bicycle	Local Transit	Air Travel	Motor Home	Inter-City Bus	Pass. Rail	Motor-Cycle
Travel To and From Work		2.66	1.23	1.51	1.32						
On-The-Job Use	1.99			1.63	1.08						1.04
Shopping	2.82			1.53	1.18				1.06		
Recreation	2.54			2.02	1.45		1.54				
Long Distance Travel (greater than 100 miles)	2.70						1.74	1.12		1.11	
Social Activities (church, personal visits, senior center)	2.71			1.62	1.25	1.05					

Table 14

Most Common Modes of Transportation Used By Households for School-Related Activities

Motor Vehicle	Walking	Local Bus or Van	Bicycle
2.66	1.62	1.39	1.35

Table 15

Mean Number of Motor Vehicles (Cars, Trucks, or Vans)

	Districts 1	2	3	4	5	State
Per Household	2.37	2.52	2.38	2.96** ^	2.45	2.48
Per Adult	1.05	1.26	1.16	1.22	1.11	1.15

Table 16

Travel for Other Activities

Table 14 also shows the modes of transportation for other activities. For on the job use respondents use motor vehicles most often on the job (1.99), followed by walking (1.63) and bicycling (1.08).

Of all the other activities, studied reported motor vehicle use is highest for shopping. While shopping, Montanans most often drive (2.82). People also walk while shopping (1.63). Respondents use a bicycle (1.18).

Respondents use motor vehicles most often for recreational purposes (2.54). Montanans also walk (2.02), fly (1.54), and ride a bike (1.45) once in a while.

Long-distance travel is most often done by motor vehicle (2.70). Respondents also fly once in a while (1.74). People travel in a motor home (1.12) or by passenger rail (1.11) infrequently.

People most often drive to social activities like church or personal visits (2.71). Respondents also report walking once in a while (1.62). Respondents report using a bicycle (1.25) or local transit (1.05) infrequently.

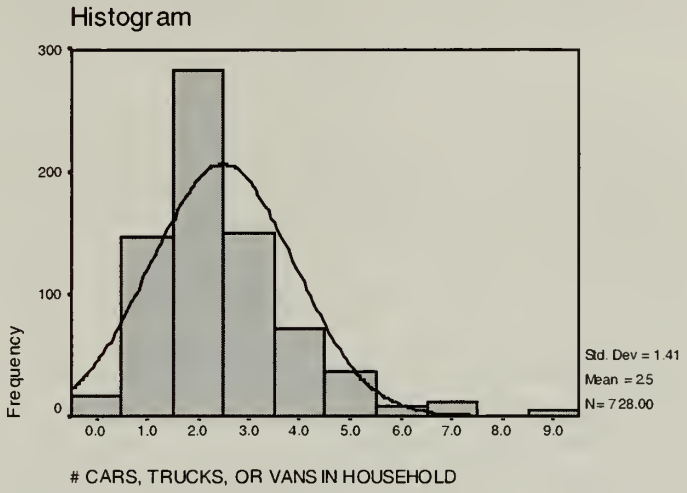


Figure 2

Respondents report that members of their household use motor vehicles most (2.66) for school-related activities (see Table 15). Respondents say household members walk once in a while (1.62). Local bus service (1.39) and bicycles (1.35) are used less frequently. The questionnaire did not include an item about school bus use, so it is not clear to what extent local bus service reports represent school buses for respondents.

Household Vehicle Availability

As seen in Table 16, respondents said that, on average, 2.48 vehicles were available in each household. Only 2.2 percent of respondents said that no vehicle was available in their household. The median number of vehicles available per household in 1999 was two, and the modal number available was also two. As seen in Figure 2 in 95 out of 100 samples, the mean

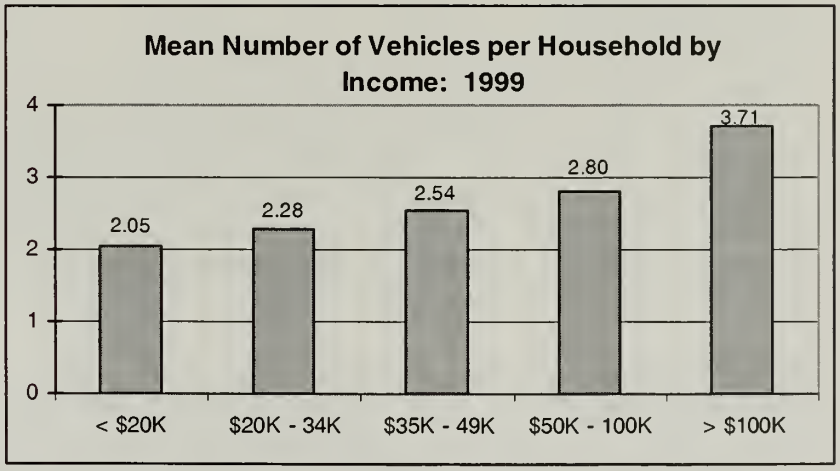


Figure 3

number available in 1999 would be between 2.38 and 2.58. Figure 3 illustrates household income is related to the number of vehicles. As income increases, so does the number of vehicles available.

IV. PORTRAIT OF MONTANANS WHO USE THE TRANSPORTATION SYSTEM

The paragraphs that follow describe Montanans who use various modes of transportation. This depiction is like a portrait. It reports respondents' transportation usage as they perceive it.

For each mode of transportation examined, an estimate of the percentage of adult Montanans who use the mode is presented. In some cases, a second estimate of users is presented. This estimate represents the number of more active users of that transportation mode. The number of more active users was estimated because, for some modes of transportation (like walking or riding a bicycle), a large proportion of all respondents report using the mode at least once in a while. The demographic characteristics of groups like all persons who report walking at least once in a while are similar to the entire sample's characteristics, and thus provide very little additional insight into who it is who walks. For groups in which a large proportion of the sample reports using a particular transportation mode, the demographic characteristics of more active users are presented. Differences between demographic groups reported in the text and tables are derived from t-tests described in Chapter One of this report.

Those Who Carpool At Least Once in a While

Characteristic	Percent	Characteristic	Percent
State	10.2%	Education Grades 1-12	5.5%
District 1	12.8	HS Diploma	8.9
District 2	7.7	Some College	9.9
District 3	8.0	Bachelors +	12.7
District 4	14.1	Income < $10,000	6.3
District 5	9.0	$10,000 - $19,999	7.1
Age 18-36	21.8***	$20,000 - $34,999	13.7
37-48	9.9*	$35,000 - $49,999	11.3
49-64	7.6	$50,000 - $100,000	12.0
65+	1.2	$100,000 +	4.1
1 in Household	4.9		
2 in Household	10.9		
3 in Household	7.9		
4+ in Household	15.5*		

Table 17

Car-poolers

Among all respondents, 10.2% say they carpool to and from work at least once in a while (see Table 17). The number of respondents who report carpooling in each district is roughly similar to the statewide percentage.

NOTE: Because the statewide proportion of car-poolers is relatively small, the estimates of demographic characteristics reported here are less precise. Readers should be mindful of this as they examine the carpooling data reported here.

Carpooling in Montana is related to age. Young adults are much more likely to report carpooling at least once in a while than are senior citizens. Respondents living in four-person households are more likely to report carpooling than those living in one-person households are.

Bicycle Riders

Riding a bicycle is a more common activity for Montanans than carpooling. Of all respondents, 41.1% report riding a bicycle at least once in a while. This proportion is relatively common throughout each of the MDT districts. More active riders are defined here as those who say they ride a bicycle at least once in a while for two or more activities, or those who say they ride a bicycle very often. Statewide, 28.3% of adult Montanans may be classified as more active bicycle riders. In general, more active bicycle riders in Montana are younger people with families, have attained higher levels of education, and have higher household incomes than other Montanans (See Table 18).

Bicycle Riders

Characteristic	Percent	Characteristic	Percent
State – Ride At Least Once In A While	41.1%	Education Grades 1-12	12.5%
State – More Active Riders	28.3	HS Diploma	23.1
District 1	32.7	Some College	27.1
District 2	36.4	Bachelors +	40.0***
District 3	22.8	Income < $10,000	20.2
District 4	19.0	$10,000 - $19,999	20.2
District 5	24.8	$20,000 - $34,999	23.3
Age 18-36	45.4**	$35,000 - $49,999	34.4^
37-48	37.5**	$50,000 - $100,000	35.9*
49-64	24.5*	$100,000 +	32.7
65+	4.9		
1 in Household	19.5		
2 in Household	23.9		
3 in Household	29.0		
4+ in Household	43.1***		

Table 18

Age is most strongly linked with riding a bicycle in Montana. Young adults are nearly 10 times more likely than senior citizens to report bicycle riding at least once in a while. Seniors are far less likely to ride a bicycle than any other age group. Those aged 49-64 are also less likely to ride a bike than are younger people.

Respondents with higher education attainment are more likely to say they ride a bicycle at least once in a while. Adults with at least a Bachelors' Degree are over three times more likely than are those with less than a high school diploma or GED to ride a bicycle.

Montanans who live in larger households are more likely to ride a bicycle than those who live in smaller households. Respondents who live with at least three other people are twice as likely as those who live alone to ride a bike.

Income appears to be related to riding a bicycle. Respondents with household incomes over $35,000 are more likely than are lower income respondents to ride a bicycle.

People Who Walk

A very substantial proportion of respondents say they walk at least once in a while during at least one of the activities studied here. The statewide proportion of persons who report walking at least once in a while is 81.5% (see Table 19). Like carpooling and bicycling, this fraction stays relatively constant when examining each MDT district.

About 70.5% of Montanans say they are more active walkers. More active walkers are defined here as those who say they walk at least once in a while for two or more activities, or those who say they walk very often for at least one of the studied activities.

Active walkers are, overall, younger people with children and higher levels of educational attainment.

Age displays the strongest relationship to actively walking. About 81% of respondents aged 18-36 said they are active walkers, while 58% of seniors said they are active walkers. In addition, more respondents aged 37-48 than respondents aged 65+ said they are active walkers.

People Who Walk

Characteristic	Percent	Characteristic	Percent
State – Walk At Least Once In A While	81.5%	Education Grades 1-12	57.1%
State – More Active Walkers	70.5	HS Diploma	66.5
District 1	66.8	Some College	71.3
District 2	74.1	Bachelors +	77.7**
District 3	67.9	Income < $10,000	65.9
District 4	73.4	$10,000 - $19,999	73.8
District 5	73.7	$20,000 - $34,999	66.4
Age 18-36	81.0**	$35,000 - $49,999	70.2
37-48	73.4*	$50,000 - $100,000	77.3
49-64	68.5	$100,000 +	65.3
65+	58.0		
1 in Household	65.2		
2 in Household	69.9		
3 in Household	67.5		
4+ in Household	78.2*		

Table 19

Education is related to respondent claims of more active walking. About 20% fewer respondents (57.1%) with less than a high school education said they are active walkers compared with respondents holding at least a Bachelors Degree (77.7%).

Household size appears to be somewhat related to reports of more active walking. About three-fourths of respondents who live in households of four or more say they are active walkers. In contrast, only 65% of respondents who live alone say they walk actively. There

does not appear to be a significant difference between income groups and their reported levels of walking.

Air Travelers

Table 20 shows that nearly two-thirds of respondents say they fly at least once in a while. More frequent air travelers are defined here as persons who say they fly at least once in a while for two or more activities, or those who say they fly very often for at least one of the studied activities. The statewide proportion of more frequent air travelers is 48.1%.

When examining reports of more frequent flying by MDT District, fewer respondents from District Four report frequent flying (29.1%) than do residents of other districts.

Air Travelers

Characteristic	Percent	Characteristic	Percent
State – Fly At Least Once In A While	65.4%	Education Grades 1-12	25.0%
State – More Frequent Flyers	48.1	HS Diploma	37.6
District 1	46.9	Some College	44.8
District 2	53.2	Bachelors +	69.6
District 3	48.8	Income < $10,000	38.8
District 4	29.1	$10,000 - $19,999	34.5
District 5	54.9	$20,000 - $34,999	41.1
Age 18-36	43.7	$35,000 - $49,999	47.0
37-48	49.5	$50,000 - $100,000	63.5
49-64	47.3	$100,000 +	69.4
65+	51.9	Sex Female	50.1
1 in Household	49.4	Male	46.2
2 in Household	55.8		
3 in Household	31.6		
4+ in Household	45.4		

Table 20

There is a strong relationship between respondent educational attainment and flying that is more frequent. Respondents with at least a Bachelors Degree are more likely than are those with less education to fly frequently. Relatively few respondents with less than a high school education say they are more frequent flyers.

Household income is also strongly related to reports of more frequent flying. Respondents who live in households with the highest incomes are much more likely to report frequent flying. Low income households report flying less.

Three-person households are less likely to say they fly more frequently than are other households. This may be the case because of the presence of young, first-born children in these households. There is no significant difference in reports of frequent flying among the various age groups.

More women than men reported frequent air travel, though this difference is not significant at the level of confidence used throughout this report. More women also report having ever flown (67.3%) than do men (63.6%). Again, this difference is not statistically significant. These findings replicate those found in the 1997 Public Involvement Survey, though the 1997

differences were larger and statistically significant. This finding may be considered counter-intuitive, and might be quite useful if confirmed by other sources.

Motorcycle or Moped Riders

Just over one in ten respondents say they ride a motorcycle or moped once in a while. The proportion of respondents who say they ride a motorcycle or moped among the five MDT Districts is fairly constant.

NOTE: Because the statewide proportion motorcycle and moped riders are relatively small, the estimates of demographic characteristics reported here are less precise. Readers should be mindful of this as they examine the data reported here.

Riding a motorcycle is related to the sex of the respondent. Males are roughly twice as likely as females to report riding a motorcycle.

Age is related to reports of motorcycle riding among Montanans. Younger respondents are significantly more likely than seniors to report riding a motorcycle.

Motorcycle Riders

Characteristic	Percent	Characteristic	Percent
State	11.1%	Education Grades 1-12	1.8%
District 1	9.5	HS Diploma	11.5
District 2	10.5	Some College	12.2
District 3	10.5	Bachelors +	11.8
District 4	16.5	Income < $10,000	7.0
District 5	12.0	$10,000 - $19,999	8.3
Age 18-36	14.4*	$20,000 - $34,999	14.4
37-48	17.2*	$35,000 - $49,999	10.6
49-64	10.3^	$50,000 - $100,000	14.4
65+	2.5	$100,000 +	8.2
1 in Household	9.1	# Vehicles 0-1	3.7
2 in Household	8.0	# Vehicles 2	7.8
3 in Household	16.7^	# Vehicles 3	18.7**
4+ in Household	14.4	# Vehicles 4+	18.7**
		Sex Female	6.3
		Male	15.6*

Table 21

Reports of motorcycle riding are more likely to come from respondents who live in larger households. Those who live in households with at least three residents are about twice as likely to say they ride a motorcycle as are those living in smaller households (see Table 21).

The number of working vehicles present in a household appears to be related to reports of riding a motorcycle or moped. Households with at least three working vehicles are nearly six time more likely than households with zero or one vehicle to report motorcycle riding. Similarly, three or four-vehicle households are over twice as likely to say they ride a motorcycle than are two-vehicle households.

Local Transit Users

Table 22 describes the characteristics of respondents who report using local bus or van services at least once in a while. The statewide proportion of adults who report using local transit at least once in a while is 11.4%.

NOTE: Because the statewide proportion of local transit users is relatively small, the estimates of demographic characteristics reported here are less precise. Readers should be mindful of this as they examine the local transit usage data reported here.

Across the five MDT Districts, the proportion of respondents who report using local transit is relatively constant. While District Four appears to have a lower percentage, this percentage is just outside the level of confidence used for this report.

There appears to be no significant difference among age groups in reports of local transit use. Household size does seem to be related to local transit use. Persons who live alone are more likely to report using local transit than are persons who live in households with four residents.

Local Bus or Van Service Users

Characteristic	Percent	Characteristic	Percent
State	11.4%	Education Grades 1-12	3.6%
District 1	15.2	HS Diploma	11.5
District 2	8.4	Some College	10.5
District 3	11.7	Bachelors +	14.1
District 4	5.1	Income < $10,000	11.6
District 5	12.0	$10,000 - $19,999	15.5
Age 18-36	14.9	$20,000 - $34,999	15.1
37-48	9.4	$35,000 - $49,999	7.3
49-64	10.9	$50,000 - $100,000	10.2
65+	11.1	$100,000 +	10.2
1 in Household	17.1*	# Vehicles 0-1	20.1**
2 in Household	11.2	# Vehicles 2	10.3
3 in Household	10.5	# Vehicles 3	8.7
4+ in Household	6.9	# Vehicles 4+	5.2

Table 22

No relationship was found between educational attainment and reports of local transit use. Too few local transit users with less than a High School Diploma or GED were sampled to make a valid estimate of this group's reported local transit use.

No relationship was observed between respondents' household income and their reports of using local transit.

The number of vehicles available for use in a respondent's household is associated with their reported local transit usage. Respondents from households with either zero or one vehicle are at least twice as likely as respondents with more vehicles to report riding on a local bus or van service at least once in a while.

Inter-City Bus Travelers

Approximately 12% of adult Montanans say they use inter-city bus service at least once in a while (see Table 23).

NOTE: Because the statewide proportion of inter-city bus riders is relatively small, the estimates of demographic characteristics reported here are less precise. Readers should be mindful of this as they examine the inter-city bus ridership data reported here.

There is an apparent difference between the MDT Districts in the proportion of respondents who report riding a bus between cities at least once in a while. District 1 respondents appear more likely than District 4 respondents to ride the bus. However, because of the small number of District Four bus riders sampled, this difference cannot be asserted at the level of confidence used for this report.

The number of vehicles available for use in a household is related to inter-city bus riding. Respondents living in households with zero or one vehicle available are over twice as likely to ride the bus as are respondents in households with more vehicles.

Inter-City Bus Travelers

Characteristic	Percent	Characteristic	Percent
State	12.1%	Education Grades 1-12	8.9%
District 1	17.5	HS Diploma	10.8
District 2	10.5	Some College	12.2
District 3	10.5	Bachelors +	14.6
District 4	7.6	Income < $10,000	13.2
District 5	9.8	$10,000 - $19,999	15.5
Age 18-36	14.4	$20,000 - $34,999	16.4
37-48	10.4	$35,000 - $49,999	10.6
49-64	12.0	$50,000 - $100,000	7.8
65+	12.4	$100,000 +	10.2
1 in Household	14.0	# Vehicles 0-1	16.7
2 in Household	13.8	# Vehicles 2	11.7
3 in Household	9.6	# Vehicles 3	13.3
4+ in Household	9.2	# Vehicles 4+	6.0
		Sex Female	13.2
		Male	11.1

Table 23

The apparent relationship between household size and inter-city bus riding is not statistically significant. Neither is the relationship between educational attainment and reports of inter-city bus use. There is no clear relationship in the 1999 survey between respondent income or gender and inter-city bus riding.

Train Passengers

About 13.5% of respondents said they travel on a passenger train at least once in a while (see Table 24).

NOTE: Because the statewide proportion of train passengers is relatively small, the estimates of demographic characteristics reported here are less precise. Readers should be mindful of this as they examine the inter-city bus ridership data reported here.

Examination of the five MDT Districts reveals that there is a difference between the proportions of district residents who report train travel at least once in a while. District 1

respondents are significantly more likely than are District 2 or 5 respondents to say they travel once in a while on a train.

None of the other demographic characteristics examined age; household size; education; household income; number of household vehicles; or sex; demonstrate a relationship with respondent reports of riding a passenger train at least once in a while. This may be due in part to the small number of train passengers present in the sample.

Train Passengers

Characteristic	Percent	Characteristic	Percent
State	13.5%	Education Grades 1-12	8.9%
District 1	19.4**	HS Diploma	12.6
District 2	9.1	Some College	13.8
District 3	15.4	Bachelors +	15.5
District 4	13.9	Income < $10,000	16.3
District 5	6.0	$10,000 - $19,999	11.9
Age 18-36	12.1	$20,000 - $34,999	12.3
37-48	16.7	$35,000 - $49,999	10.6
49-64	12.5	$50,000 - $100,000	13.8
65+	12.4	$100,000 +	20.4
1 in Household	13.4	# Vehicles 0-1	11.1
2 in Household	12.7	# Vehicles 2	14.5
3 in Household	13.2	# Vehicles 3	15.3
4+ in Household	15.0	# Vehicles 4+	11.9
		Sex Female	12.9
		Male	14.0

Table 24

V. TRENDS IN MONTANA'S TRANSPORTATION SYSTEM

The 1999 TranPlan21 Public Involvement Survey was designed to provide the opportunity to analyze trends in perceptions about Montana's transportation system. Like previous portions of this report, comparisons here are made using t-tests. Chapter 1 provides an explanation of why t-tests are used, and how differences between values are designated. Trends are reported only if the differences from the 1999 value are significant at the .05 level. The values reported in the charts presented here are rounded for clarity.

NOTE: The 1999 survey results are compared to those found in 1997 and 1994. Several questions were added to this study in 1997, thus in some cases comparisons can only be made between 1997 and 1999.

Satisfaction with the Transportation System

In 1994, 1997, and 1999 respondents were asked to rate their satisfaction with the physical condition of various system components on a one to ten scale, where one is very unsatisfied and ten is very satisfied. The surveys also asked respondents whether or not more facilities, equipment, or services are needed for certain system components.

When asked to rate their overall satisfaction with Montana's transportation system in 1999, respondents' attitudes were unchanged (6.30) from 1994 (6.20) or 1997 (6.28). A chart describing Montanans' satisfaction with various transportation system components may be found in Figure 4.

In general, satisfaction with the physical condition of system components improved in 1999. Of the eight items studied, satisfaction improved in four, while the remaining four showed no significant change.

Montanans' rating of the physical condition of bicycle pathways improved from unfavorable ratings in 1994 (4.61) and 1997 (4.77) to a mildly favorable rating (5.65) in 1999. The rating of city streets in 1999 (5.15) also improved to a neutral or mildly favorable rating over that found in 1997 (4.71).

A significant gain is found in the rating of the 1999 condition of other major highways (6.12) over the 1994 condition (5.23). 1999 respondents also rate pedestrian walkways higher (6.09) than they did in 1994 (5.39).

In contrast to their ratings of the physical condition of system components, Montanans rate their satisfaction with availability of transportation services as the same or lower than earlier survey respondents. Two of the eight services studied were rated lower. The remaining six demonstrated no significant change.

Satisfaction with the availability of out-of-state air travel services has declined steadily from 6.70 in 1994 to 6.52 in 1997 and to 6.00 in 1999. Satisfaction with the availability of passenger rail services was mildly unfavorable in 1994 (4.78). In 1999 mean satisfaction dropped to 4.15.

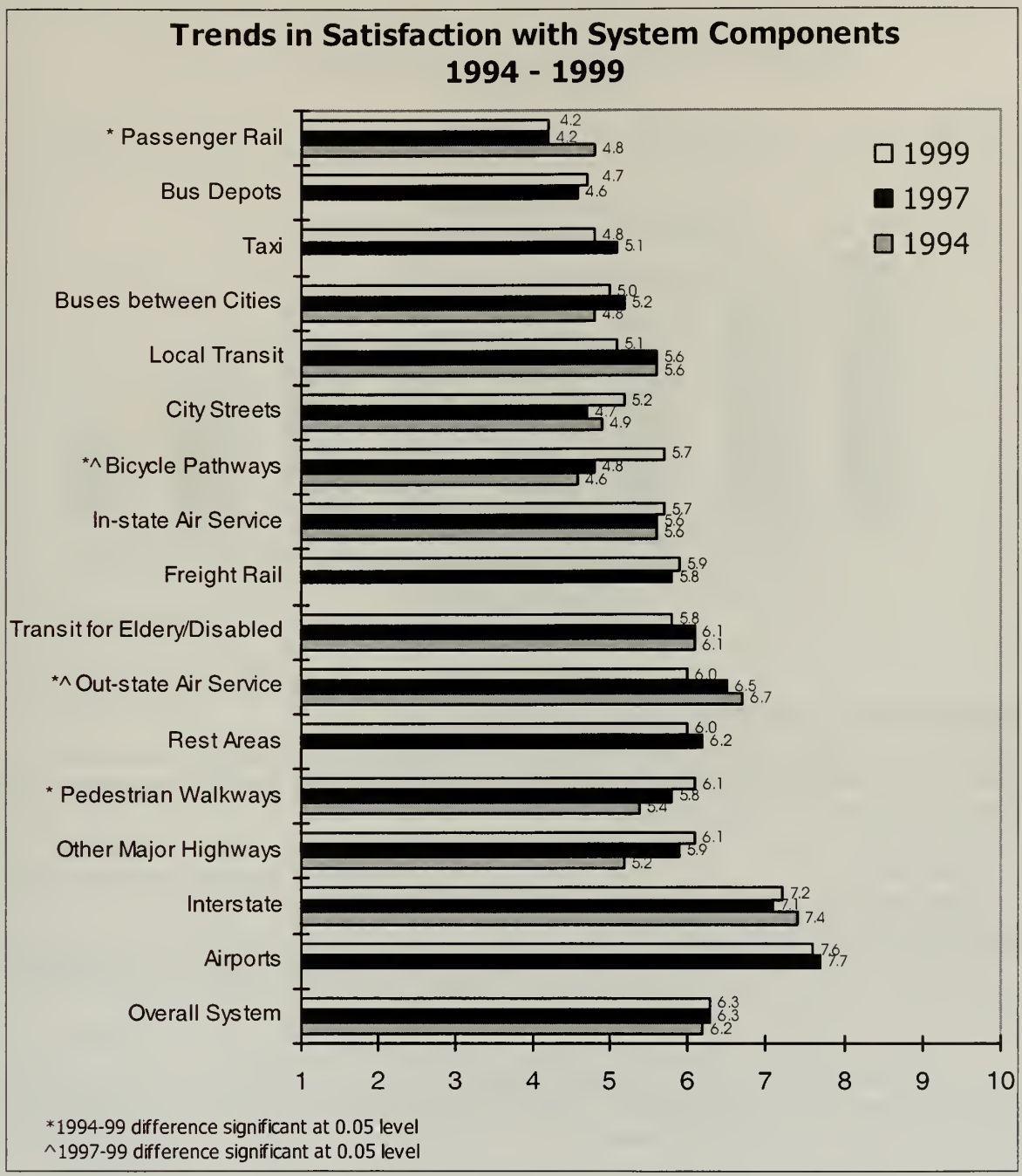


Figure 4

Perceived Need for More Facilities, Equipment, or Services

In 1997 and again in 1999 respondents were asked whether they perceived a need for certain other additional facilities, equipment, or services (see Figure 5). No significant change was observed in 1999 responses when compared to those of 1997.

However, in 1999, 58.9% of respondents said more rest area facilities, equipment, or services were needed. The 1997 total was 51.9%. This difference falls just outside the confidence interval chosen for this report. Readers should be aware that a seven- percent

increase in this variable might have "common sense significance" even if it misses statistical significance by a thread.

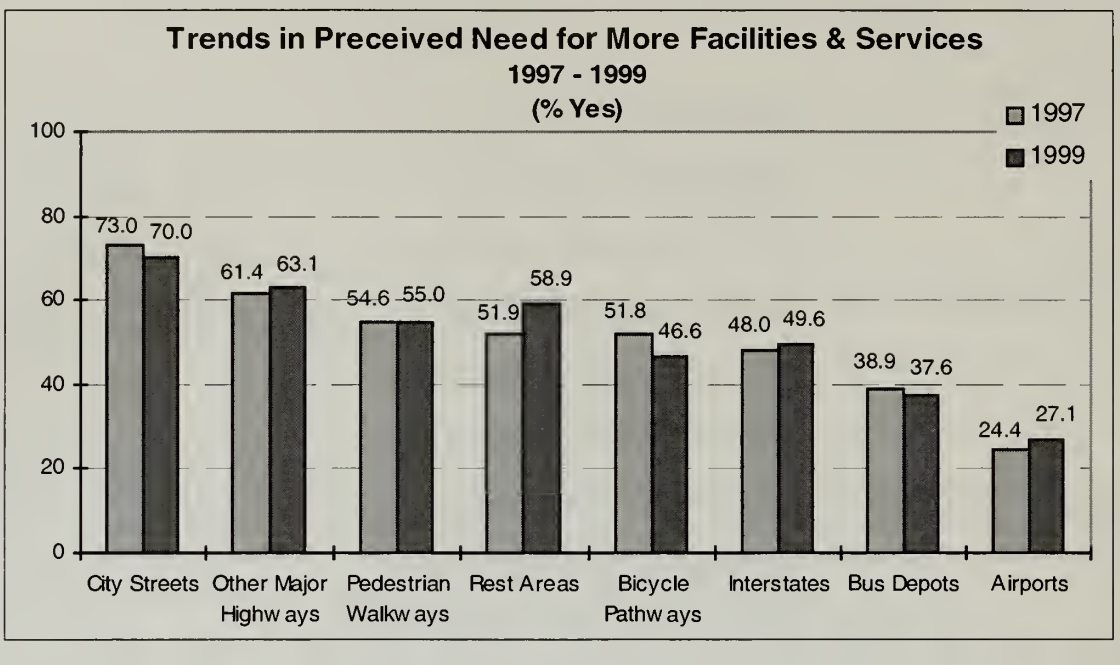


Figure 5

Perceived Transportation System Problems

Questions about respondents' perceptions concerning possible problems were asked in 1994, 1997, and 1999. Questions in each survey used the same format. Respondents were asked to rate possible problems as:

- No problem
- Small problem
- Moderate problem
- Serious problem

A "no problem" response was coded as one, "small problem" was coded as two, "moderate problem" was coded as three, and a "serious problem" was coded as four. The mean score of the problem-rating scores are reported here.

Montanans rated the severity of perceived problems in 1999 the same or slightly higher than did earlier respondents (see Figure 6). Three of ten severity ratings increased in 1999 over 1997, while one 1999 rating decreased from its 1994 level. In addition, all of the 1999 point estimates - ignoring the confidence intervals around those estimates - increased over the 1997 levels. It is important to note that these are small, relative increases. In absolute terms, no problem was rated as serious. All the 1999 problems were rated as being of small or medium severity.

Increases in perceived severity were found in three related problems. Traffic congestion was rated as a slightly more severe problem in 1999 (2.62) than it was in 1997 (2.40). The number of one-occupant vehicles was judged by 1999 respondents to be a bit more of a problem (2.19) than it was by 1997 respondents (1.84). However, neither the 1999 nor 1997 ratings approach the 1994 rating of 2.48.

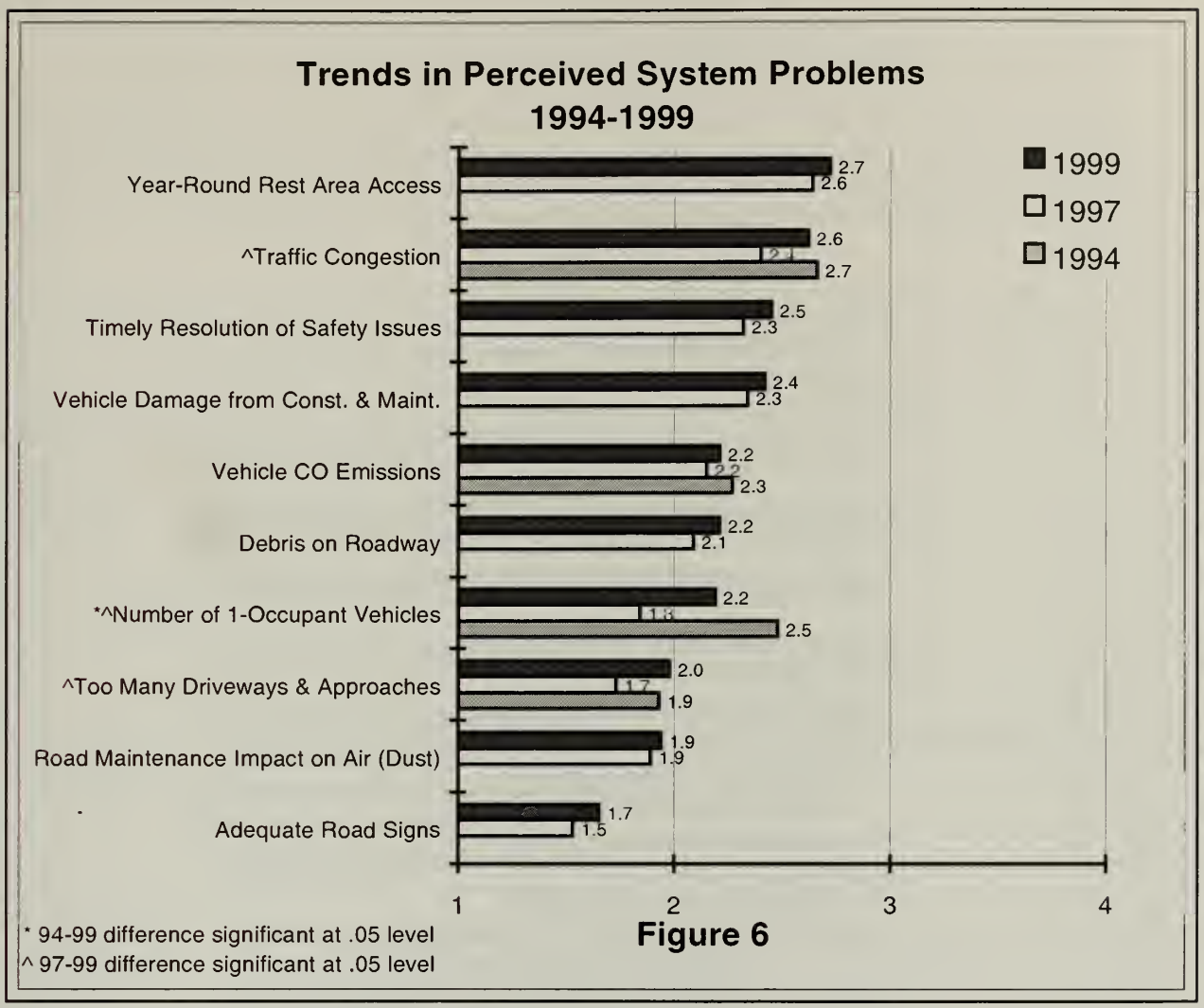


Figure 6

Montanans in 1999 rated having too many driveways and approaches onto major highways as slightly more severe (1.98) than they did in 1997 (1.73).

Possible System Improvements

In each survey, respondents were asked to prioritize a number of possible system improvements. These potential improvement actions were rated:

- No priority
- Low priority
- Medium priority

"No priority" ratings were coded as one, "low priority" coded as two, "medium priority" as three, and "high priority' coded as four.

In general, respondents to all three studies rate nearly all of the possible actions as medium priorities. Figures 7 and 8 illustrate respondents' priorities. In each year, only one item, reducing single occupant vehicle use, is rated a low priority.

Montanans in general said possible system improvements were a higher priority in 1999 when compared to the earlier study results. Seven possible improvement actions increased in priority in 1999 when compared to 1997, while six increased in priority and only two decreased when compared to 1994. Five actions showed no change in priority. Two

system-wide improvements increased in priority. 1999 respondents saw keeping the public informed as a higher priority (3.48) than they did in 1997 (3.31). Keeping current with new technology was also rated a higher priority in 1999 (3.42) than it was in 1997 (3.18).

Montanans said in 1999 that improving the availability or use of three transportation services is a higher priority compared to responses in the earlier studies. Year-round access to rest areas was rated a higher priority in 1999 (3.38) than it was in 1997 (3.24). Promoting the use of existing passenger rail service was also a higher priority in 1999 (3.07) than it was in 1997 (2.90).

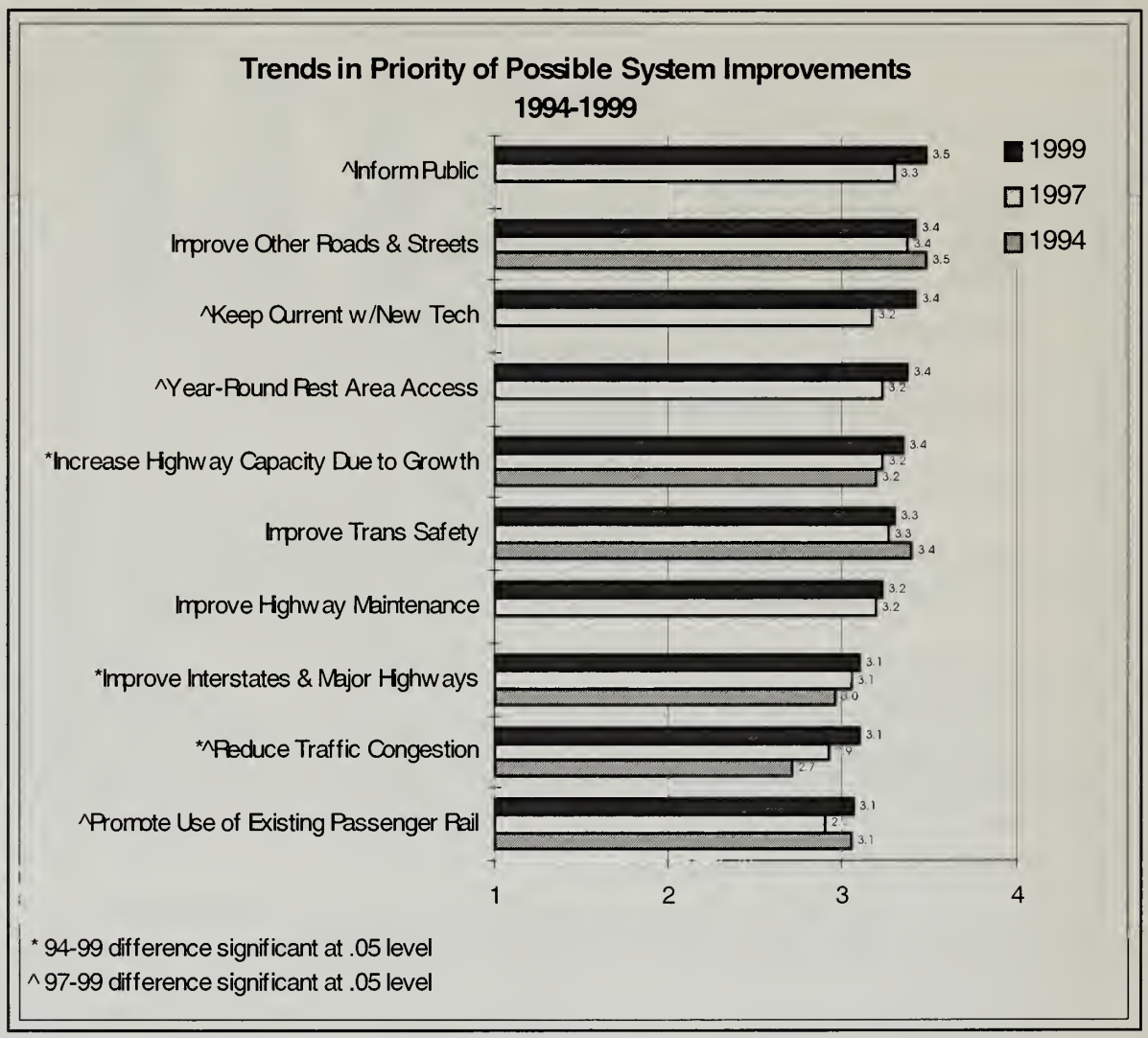


Figure 7

Promoting the availability of airline service has consistently increased as a priority among Montanans since 1994. In 1994, the priority rating was 2.68. This grew to 2.83 in 1997 and 3.02 in 1999. These results are supported by the finding described earlier, that satisfaction with the availability of out-of-state airline service has steadily declined since 1994.

A group of five improvements related to growth increased in priority in 1999. Montanans rate increasing highway capacity due to growth a higher priority in 1999 (3.35) than they did in 1994 (3.20). Reducing traffic congestion has steadily increased as a priority. In 1999, its priority rating was (3.10). This is higher than it was in 1997 (2.93) or 1994(2.72). Reducing

vehicle carbon monoxide emissions increased in priority in 1999 (2.95) over 1994 (2.73). Regulating driveways and approaches onto major highways is more important to 1999 respondents (2.83) than it was to 1994 respondents (2.58). Reducing the number of one-occupant vehicles, while still a low priority, slightly increased in importance in 1999 (2.28) over 1997 (2.08).

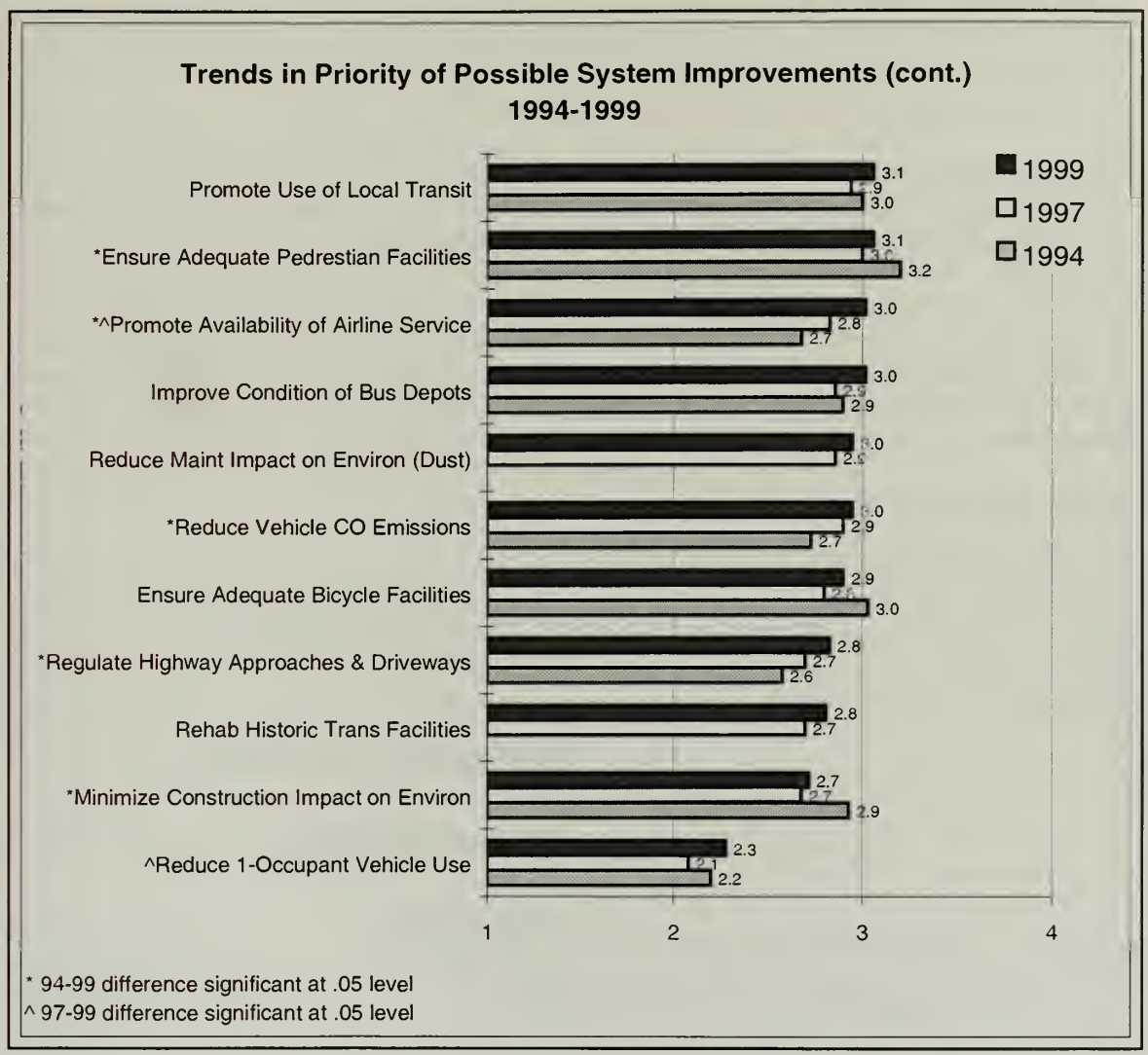


Figure 8

Montanans rate the priority of improving interstates and major highways slightly higher in 1999 (3.11) than in 1994 (2.96).

Only two possible improvements dropped in priority in 1999. The first is ensuring adequate pedestrian facilities. This improvement received a 3.06 rating in 1999, which is a slight drop from its 1994 level of 3.20. The second is minimizing the impact of highway construction on the environment. 1999 respondents gave this a priority rating of 2.72, which is somewhat below its 1994 rating of 2.93.

Transportation Mode Use

In 1999, as in 1997, respondents were asked a series of questions related to their use of various transportation modes. The dominant finding of this analysis in 1999 closely matches

those of the 1997 study (see Figure 9). Motor vehicles - especially cars, trucks, or vans - were the dominant mode of transportation for Montanans in 1997 and 1999.

Car, truck, or van use was the dominant transportation mode among each of the seven activities studied in 1997 and 1999. Respondents' 1999 reports of the general frequency of their car use for all of these activities were unchanged from 1997. In addition, the number of usable vehicles available in Montanans' households in 1999 (2.48) was essentially identical to that found in the 1997 study (2.49). The number of vehicles available per person in 1999 was also unchanged from 1997 (1.17) to 1999 (1.15).

Montanans' 1999 reports of the overall frequency of their use of other transportation modes – walking, flying, bicycling, riding an inter-city bus, riding a local bus, or carpooling – were unchanged from their 1997 levels. Possible anomalies in the 1997 passenger train use and motorcycle riding variables preclude examining 1999 trends for those variables.

The 1999 point estimate of respondents who report carpooling at least once in a while to get to work (10.2%) is lower than the point estimate in 1997 (12.7%). This adds evidence to the hypothesis that carpooling as a mode of travel to and from work is declining among Montanans.

Trend Summary

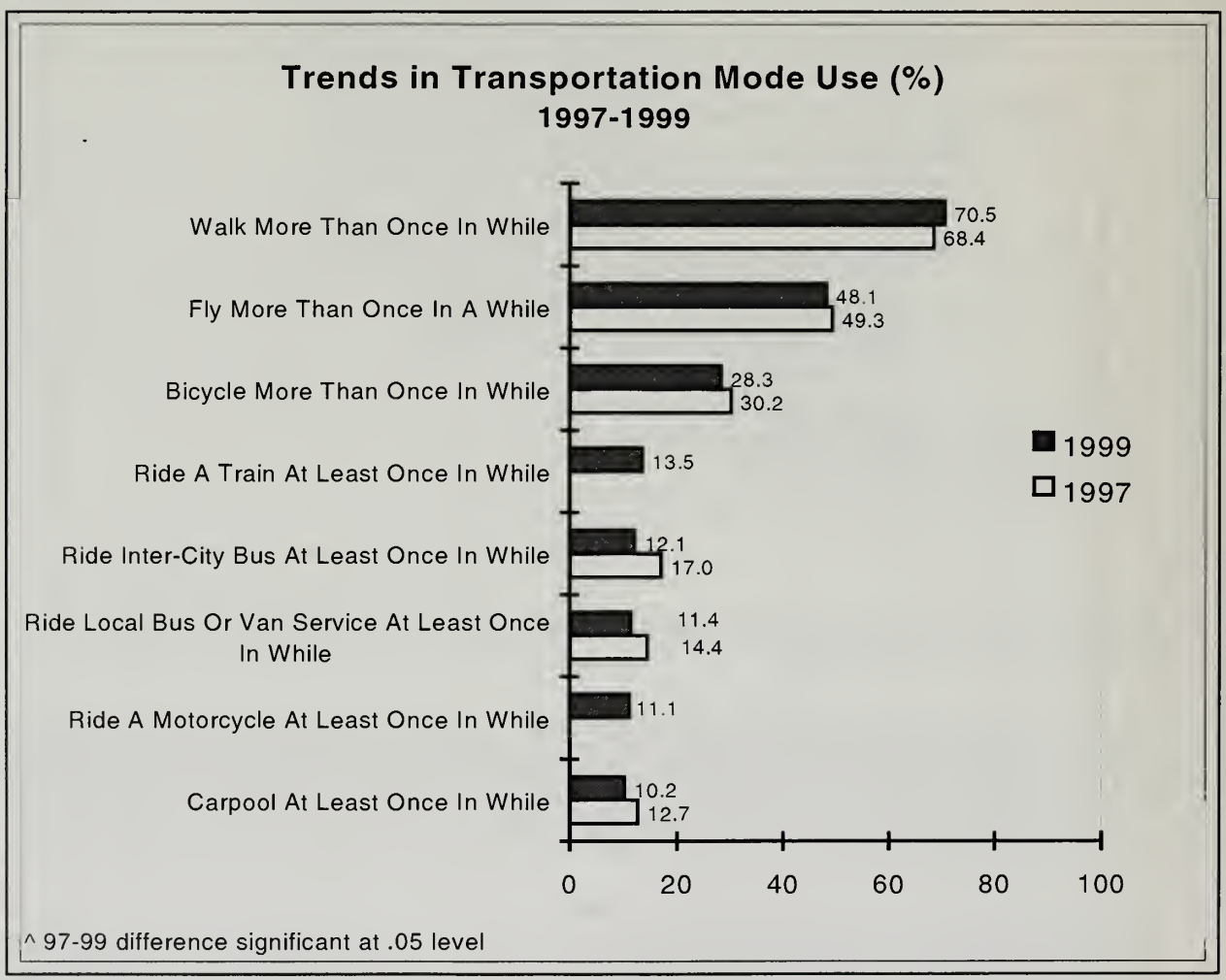


Figure 9

1. An unchanged overall satisfaction rating of 6.30 on a scale of one to ten, where one is "very unsatisfied" and ten is "very satisfied".
2. An overall increase in satisfaction with the physical condition of four of eight possible components, while satisfaction with the four other components remained unchanged.
3. A continued rating of the severity of perceived system problems as small or medium problems.
4. A continued rating of possible system improvements as medium priorities.

However, relative to the previous studies, the results of the 1999 survey give a few indications of trends that bear watching:

- Montanans' satisfaction with the availability of two transportation services (including out-of-state air travel) declined in 1999; while the other six studied were unchanged.
- It is likely that more Montanans in 1999 want improved rest area facilities, equipment, or services.
- Montanans rated the severity of three growth-related problems higher in 1999, while the remaining severity ratings were unchanged.
- Two system-wide improvements (keeping Montanans informed and keeping up with current technology) were rated higher priorities in 1999.
- Three actions to improve the availability of transportation services (including out-of-state air travel service) were judged higher 1999 priorities.
- Five growth-related system improvements were rated higher priorities in 1999.

All of these indications were based on relatively small but statistically significant changes in respondent reports since the baseline study in 1994. The strongest indications are found when the changes occur across time and in responses to multiple questions about the same subject. Indications about out-of-state air service and growth-related concerns (like traffic congestion) are found across the studies and in responses to more than one question related to these subjects.

VI. ADDITIONAL AREAS OF INTEREST

Availability of Air Transportation to Destinations Outside Montana

Montanans were moderately satisfied with the availability of air transportation to destinations outside Montana in 1999. They rated the availability of out-of-state air travel a 6.00 on a one through ten scale, where one is not satisfied and ten is very satisfied.

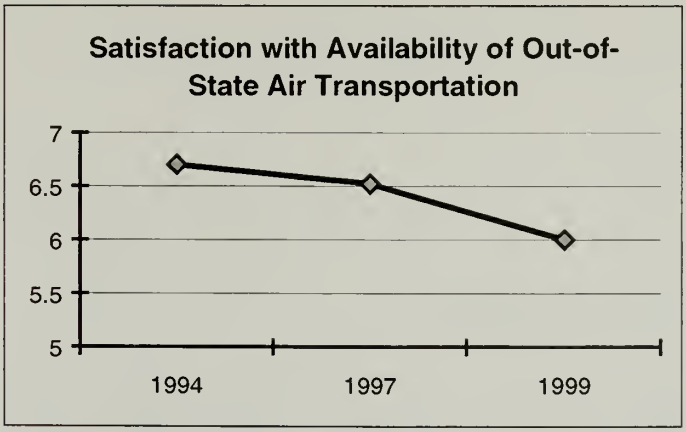


Figure 10

However, Montanans' satisfaction with the availability of out-of-state air travel has steadily declined since 1994. Figure 10 illustrates this decline.

Evidence of this decline in satisfaction is bolstered by the fact that Montanans' priority rating of promoting the availability of airline service has consistently increased since 1994. Montanans were asked to rate the priority of promoting the availability of airline service on a scale from one to four, where one is no priority and four is a high priority. In 1994, the priority rating for promoting airline service was 2.68. By 1997, the rating increased to 2.83 and in 1999 the rating rose to 3.02.

It is important to note that neither the decline in satisfaction nor the increase in priority described above is exceptionally large. But the results are statistically significant and they occur consistently across time and come from different questions about similar subjects. This combination of findings repeated across time and question items makes this finding especially robust.

Two demographic characteristics are key to understanding which Montanans reported declining satisfaction with the availability of air transportation to destinations outside Montana. The first is educational attainment. Among 1999 respondents, persons with a bachelors degree or more are less satisfied than are those with only a high school diploma or G.E.D. Figure 11 demonstrates this. Similarly, only 40% of persons with less than a high school diploma or G.E.D. rate promoting airline service a high priority. Those with a bachelors degree are much more likely (68.9%) to rate it a high priority.

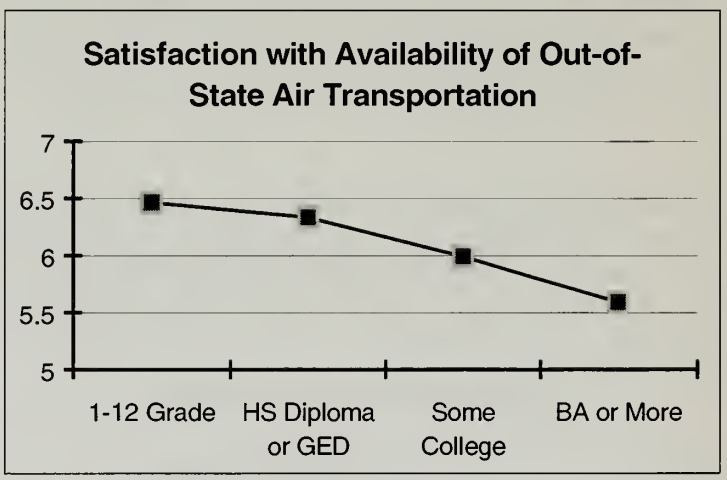


Figure 11

There are also regional differences in satisfaction with the availability of out-of-state airline service. Districts Two (5.76) and Three (5.66) rate their satisfaction lower than District Five (6.61).

Nearly 74% of District Two residents rate promoting the availability of airline service a medium or high priority. Only 55.1 percent of District Four residents view it as a medium or high priority. While fewer District 5 respondents (61.7%) said promoting airline service is a medium or high priority compared to District Two, the difference is not statistically significant.

Traffic Congestion

Montanans rate traffic congestion a moderate problem (2.62) in 1999. This perceived problem received the second-highest severity rating of the items studied in 1999. Reducing traffic congestion has steadily increased as a priority for Montanans since 1994. Montanans rated the priority of reducing traffic congestion a 2.72 in 1994. This rating increased to 2.93 in 1997 and to 3.10 in 1999.

Respondents' assessment of the severity of traffic congestion increased in 1999 (2.62) over their assessment in 1997 (2.40). This relative increase in 1999 brings the level back to the severity rating observed in 1994.

The observation that Montanans are increasingly concerned about traffic congestion is strengthened by increases in several other growth-related indicators. The severity rating of two possible system problems, the number of one-occupant vehicles and too many driveways and approaches onto major highways, increased in 1999 over 1997. In addition, the priority rating of the following three possible solutions to growth-related problems increased in 1999 over 1994:

- Increasing highway capacity due to growth
- Reducing vehicle carbon monoxide emissions
- Regulating driveways and approaches onto major highways

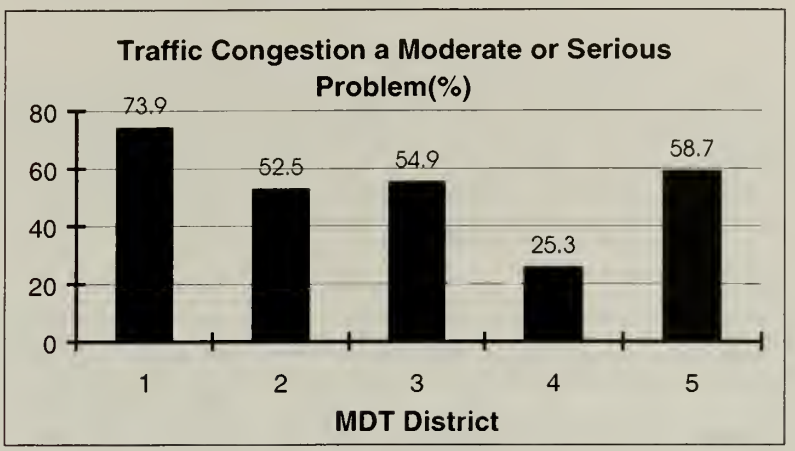


Figure 12

The priority rating of reducing one-occupant vehicles also increased in 1999 over 1997. This cluster of issues and Montanans' increasingly intense evaluations of them over time make the observation that respondents view traffic congestion as an increasing problem particularly strong.

One demographic characteristic, MDT District, is key to understanding which Montanans view traffic congestion as an increasing problem (see Figure 12).

Residents of District One are much more likely to say traffic congestion is a moderate or serious problem in 1999 (73.9%) than are residents of any other district. However, a majority of residents in three other districts – Two (52.5%), Three(54.9%), and Five (58.7%) – also say it is a medium or high priority. Residents of District Four are relatively unconcerned about traffic congestion.

More District One residents rated reducing traffic congestion a medium or high priority in 1999 (82.9%) than did those living in District Three (63.6%) or District Four (57.7%). A larger number of District Five residents also rated reducing traffic congestion a higher priority (74.4%) than did those in District Four.

Other Issues

To complete the survey's exploration of attitudes concerning the transportation system, respondents were asked if there were any other issues which should be addressed by MDT. Table 25 lists the responses given by more than three respondents. These responses should be viewed as a rough measure of the intensity of feelings about certain issues.

The four most prominent issues raised by Montanans were Highway 93, road maintenance, rest areas, and the availability of air travel. Twelve respondents said Highway 93 should be widened, while another nine said safety and maintenance on Highway should be improved. Only two respondents said that no changes to Highway 93 should be made.

Fourteen respondents said county and secondary road maintenance should be improved, while another five said general road maintenance should be improved.

Thirteen respondents said rest area maintenance and safety should be improved. Another five said the number of rest areas should be increased.

Ten respondents said the availability of air travel should be increased, while three said availability of air service in Great Falls should be improved.

Other Issues that Should Be Addressed by MDT: Top Responses

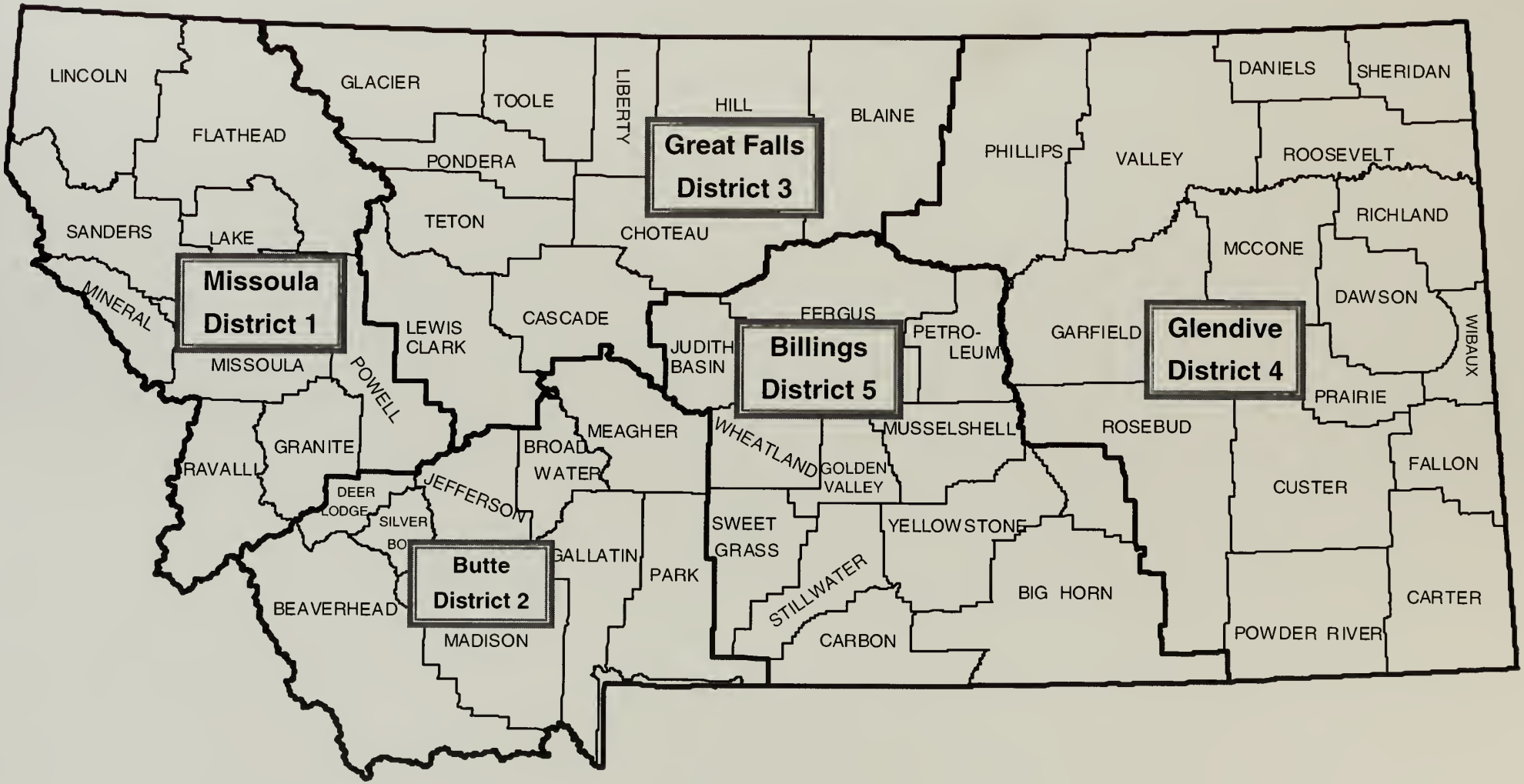
Issue	N	Issue	N
Improve footpaths and bicycle paths	16	Reduce traffic congestion	5
Improve county and secondary road maintenance	14	Increase number of rest areas	5
Improve rest area maint. and safety	13	Improve quality of road repairs	5
Provide more passenger rail service	12	Improve signs on highways	4
Increase bus service in smaller towns	12	More interstates/ highways (going North and South)	4
Against new speed limit	11	Improve highways in growth areas	4
More air travel available	10	Reducing traffic blockage from construction	4
Widen/ straighten/ flatten 2 lane highways	10	Increase number of highway patrol	3
Widen Highway 93 to four lanes	9	More transportation for elderly or disabled	3
Improve maintenance and safety Highway 93	9	Widen highway 93 (no lane #)	3
Construction projects take too long	9	Improve availability of air service in Great Falls	3
Enforce drinking, speeding and insurance laws	8	Require bicycle riders to follow traffic rules	3
Improve intersections/ lights, turn lanes, signs	8	Reduce cost of air travel	3
Improve highway snow removal	7	Keep bicycles off the streets	3
Increase bus service in cities	6	Improve shoulders on highways	3
Improve interstate and infrastructure	6	Better educate drivers	3
Make MDT more effective	6	Farm equipment on highways dangerous	3
Maintain gravel and 'back roads'	6	More consistency on checks of semi trucks	3
Improve general road maintenance	5	Increase number of truck bypass routes (keep them off narrow roads)	3
Improve city street maintenance	5		

Table 25

Appendix A: Financial Districts Map

Appendix A:

Financial Districts



Montana Department of Transportation

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